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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/632,845	08/04/2000	Shrikumar Hariharasubrahmanian	0024-0003	2524

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EXAMINER
SHAH, CHIRAG G

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/632,845	HARIHARASUBRAHMANIAN, SHRIKUMAR
	Examiner	Art Unit	
	Chirag G Shah	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>22 June 2004</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-27, 29, 30, 32, 33 and 35-44* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-27, 29-30, 32-33, and 35-44* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 1, 2, 4, 5-10, 12, 13-18, and 20-44 rejected under 35 U.S.C. 103(a) as being

unpatentable over Sabaa et al. (U.S. Patent No. 6,389,016) in view of Brailean et al. (U.S. Patent

No. 6,134,237).

Referring to claims 1, 9, 17, and 42-44, Sabaa discloses in the column 2, lines 63 to

column 3, lines 25 and figures 1-4 of a method for transmitting data as a number of segments in

separate packets, each packet including a sequence number field (each group is segmented into a

plurality of packets and the packets within each group are sequentially indexed with sequence

numbers, column 4, lines 35-56), the method comprising: generating a sequence number that

includes a plurality of portions (as disclosed in figures 1, 3 and column 4, lines 35-56), with at

least one portion of the sequence number identifying a particular segment of the data (as

disclosed in figure 2) within a file; transmitting to a receiving device a data packet including the

particular segment of the data and the sequence number to a receiving device (as disclosed in

figures 1, 3 and claims 1, transporting data between a sending entity and a receiving entity over a

data communications system wherein the sending entity divides data into a plurality of groups

which are sequentially indexed with group numbers, each group is segmented into a plurality of

packets which are sequentially indexed in each group with sequence numbers); receiving an

acknowledgement packet from the receiving device, the acknowledgement packet including an

acknowledgment sequence number (as disclosed in figures 1, 4, claims 1 and 2, and column 5,

lines 35-67, specifically, when the last packet detector 40 detects a packet with its last packet bit,

the receiver sends a positive acknowledgment packet to the sender by the acknowledgment

sending unit 42 with the acknowledgement filed set to indicate a positive acknowledgement and

it is preferable that, in a known location in the user data portion of the packet, the group number

of the group just received in entirety is indicated); Furthermore, Sabaa discloses in figure 2,

reference index 56 of the method of claims, wherein the data represents at least one of a data file,

a data message and application generated data as claims. Sabaa, discloses in claims 1 and 2 of

determining a next segment of the data to transmit based one or more portions of the received

acknowledgment sequence number that corresponds to the at least one portion of the associated

sequence number (as disclosed in figure 1 and claim 1 and 2, specifically based on one or more

portions of the received positive or negative acknowledgment, the next expected sequence

number is indicated).

As mentioned above, Sabaa system as disclosed in col. 5, lines 58-63, uses the receipt

of the last packet of a group for generating an acknowledgement on the receiver, thus receiving

only a single acknowledgment packet from the receiving device for all received data. Sabaa,

however, system fails to disclose receiving an associated acknowledgment packet from the

receiving device, the ack packet including sequence number that is based on the sequence

number in the transmitted packet.

Brailean discloses of a method and an apparatus for tracking data packets in the packet

data communication system. Brailean discloses in the abstract and in figure 2 and respective

portions of the specification of a transmitter transmitting data packet including packet sequence

number to a target receiver device. The target receiver device, upon receiving the packet, sends

an acknowledgment packet to the transmitter indicating next packet sequence number expected

to be received at the target receiver device. When the receiver receives the acknowledgment

packet, the transmitter determines whether a communication error occurred based on the receive

tracking number and the transmit tracking number and thus determines a next segment of the

data to transmit. Note, for each data packet transmitted, the transmitter receives a corresponding

ack packet. Therefore, it would have been obvious to one of ordinary skills in the art at the time

of the invention to modify the teachings of Sabaa to include the acknowledgement packet that is

based on the sequence number in the transmitted packet at taught by Brailean in order to assist

the sending device in its attempt to transmit the correct data packet, thus reducing packet error

and further latency that develops when inaccurate or multiple packets are transmitted.

Referring to claims 2, 10, and 18, Sabaa discloses in figure 1, claims 1, 2, and

column 6, lines 14-48, the method of claim 1, wherein the at least one portion of the

acknowledgement sequence number includes an incremented version of the at least one portion

of the sequence number transmitted to the receiving device and the determining step further

includes: identifying the next segment to transmit based on the incremented version as claims.

Referring to claims 4, 12, and 20, Sabaa discloses in figure 1, claims 1, 2, and

column 5, lines 35-67, the method of claim 1, further comprising: repeating the transmitting,

receiving and determining steps for additional segments of the data file until all the segments of the data have been transmitted as claims.

Referring to claims 5, 13, and 21, Sabaa discloses in figure 2 and in claims 1 and 2, wherein the transmitting includes: transmitting the data packet without storing information identifying the segment (group) being transmitted to the receiving device as claims.

Referring to claims 6, 7, 14, 15, 22 and 23, Sabaa discloses in figure 1 and specifically in column 4, lines 34-60 that the dividing unit 12 divides the entire data into a plurality of independent groups. The groups are sequentially indexed with group numbers. Sabaa, however fails to explicitly discloses the method of claim 1, wherein the plurality of portions includes a least significant portion, wherein the partitioning includes: setting the length of the least significant portion based on the length of the segments transmitted and setting the length of the least significant portion to n bits when the length of the segments transmitted is 2^n bits. Sabaa further discloses in column 4, lines 38-60 that the groups are sequentially indexed with group numbers. Each group is also segmented into a plurality of packets. Each packet may have a fixed size or a variable size. The last packet (which may be defined as a least significant portion) in the group may be of a smaller size, depending on the total amount of user data. Thus, the setting of the last packet in the group is based on the length of the segments transmitted within the group. Furthermore implying that the setting may include setting the length of the least significant portion (last packet) to n bits when the length of the segments transmitted within the group is 2^n fixed bits as claims. Therefore, it would have been obvious to one of ordinary skill in the art to incorporate Sabaa's suggestions with respect to last packet in the group, for setting

the length of the least significant portion (last packet within group) in order to accurately identify

length of each packet being transmitted.

Referring to claims 8, 16, and 24, Sabaa discloses in column 2, lines 63 to column 3, lines

25 of the method of claim 1, wherein the generating includes: generating the at least one portion

of the sequence number based on predictable processing performed by the receiving device (the

sending entity divides data into a plurality of groups which are sequentially indexed with group

numbers, each group is segmented into a plurality of packets which are sequentially indexed in

each group with sequence numbers and thus, when the sequence number of the received packet

matches the expected sequence number, the receiving entity accepts the received packets for

further processing, and increments the expected sequence number of the group), and generating

at least one other portion of the sequence number in accordance with a specification of a relevant

protocol (as disclosed in figure 2, that the packet 50 is a data unit having a size 52, and

consisting of a header portion 54 and a user data portion 5. The header portion 54 contains

addressing information 58 and optional user-defined protocol control information) as claims.

Referring to claims 25, 26, 29, 32, 35, 37, 39, 41, Sabaa discloses in the column 2,

lines 63 to column 3, lines 25, and in figures 1-4 of a system for transmitting a data stream as a

number of discrete packets, each packet including a sequence number (Each group is segmented

into a plurality of packets and the packets within each group are sequentially indexed with

sequence numbers, column 4, lines 35-56), the method comprising: partitioning the sequence

number field into a plurality of portions (as disclosed in figure 1, figure 2, and column 4, lines

35-56), the system comprising: partitioning the header filed into a plurality of subfields as claim

(figure 2); means for generating a sequence number including a plurality of portions, at least one

portion identifying a particular segment of the data stream (as disclosed in figures 1, 3 and

column 4, lines 35-56); means for sending a data packet including a first segment of the data

stream and the sequence number to a receiving device (as disclosed in figures 1, 3 and claims 1,

transporting data between a sending entity and a receiving entity over a data communications

system wherein the sending entity divides data into a plurality of groups which are sequentially

indexed with group numbers, each group is segmented into a plurality of packets which are

sequentially indexed in each group with sequence numbers); means for obtaining an

acknowledgement packet from the receiving device, the acknowledgement packet including an

acknowledgment sequence number (as disclosed in figures 1, 4, claims 1 and 2, and column 5,

lines 35-67, specifically, when the last packet detector 40 detects a packet with its last packet bit,

the receiver sends a positive acknowledgment packet to the sender by the acknowledgment

sending unit 42 with the acknowledgement filed set to indicate a positive acknowledgement and

it is preferable that, in a known location in the user data portion of the packet, the group number

of the group just received in entirety is indicated); and Sabaa, discloses in claims 1 and 2 of

means for identifying a next segment of the data stream to transmit based on one or more

portions of the acknowledgment sequence number (as disclosed in figure 1 and claim 1 and 2,

specifically based on the acknowledgment positive or negative, the next expected sequence

number is indicated)as claims.

As mentioned above, Sabaa system as disclosed in col. 5, lines 58-63, uses the receipt

of the last packet of a group for generating an acknowledgement on the receiver, thus receiving

only a single acknowledgment packet from the receiving device for all received data. Sabaa,

however, system fails to disclose receiving an associated acknowledgment packet from the

receiving device, the ack packet including sequence number that is based on the sequence

number in the transmitted packet.

Brailean discloses of a method and an apparatus for tracking data packets in the

packet data communication system. Brailean discloses in the abstract and in figure 2 and

respective portions of the specification of a transmitter transmitting data packet including packet

sequence number to a target receiver device. The target receiver device, upon receiving the

packet, sends an acknowledgment packet to the transmitter indicating next packet sequence

number expected to be received at the target receiver device. When the receiver receives the

acknowledgment packet, the transmitter determines whether a communication error occurred

based on the receive tracking number and the transmit tracking number and thus determines a

next segment of the data to transmit. Note, for each data packet transmitted, the transmitter

receives a corresponding ack packet. Therefore, it would have been obvious to one of ordinary

skills in the art at the time of the invention to modify the teachings of Sabaa to include the

acknowledgement packet that is based on the sequence number in the transmitted packet at

taught by Brailean in order to assist the sending device in its attempt to transmit the correct data

packet, thus reducing packet error and further latency that develops when inaccurate or multiple

packets are transmitted.

Referring to claims 27, 30, 33, 36, 38, 40, Sabaa discloses the method of claim 26, further

comprising: receiving an acknowledgement packet from the receiving device, the

acknowledgement packet including an acknowledgment sequence number (as disclosed in

figures 1, 4, claims 1 and 2, and column 5, lines 35-67, specifically, when the last packet detector

40 detects a packet with its last packet bit, the receiver sends a positive acknowledgment packet

to the sender by the acknowledgment sending unit 42 with the acknowledgement filed set to

indicate a positive acknowledgement and it is preferable that, in a known location in the user

data portion of the packet, the group number of the group just received in entirety is indicated);

and determining a next data segment to transmit based on the acknowledgment sequence number

(as disclosed in figure 1 and claim 1 and 2, specifically based on the acknowledgment positive or

negative, the next expected sequence number is indicated) as claims. Sabaa further discloses in

figure 2 of the method, wherein the at least one portion identifies a particular data segment in a

data stream, wherein the determining includes: identifying a portion of the acknowledgement

sequence number corresponding to the at least one portion transmitted to the receiving device

(figures 1, 4, claims 1, 2, and column 5, lines 35-67), and determining a next data segment of the

data stream to transmit based on a value of the identified portion (figures 1, 2, and claims 1 and

2) as claims.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 3, 11, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Sabaa et

al in view of Brailean et al as applied to claims 1, 2, 4, 5-10, 12, 13-18, and 20-44 above, and

further in view of Coile (U.S. Patent No. 6,006,268).

Referring to claims 3, 11, and 19, Sabaa discloses in figure 2, that the packet 50 is a data

unit having a size 52, and consisting of a header portion 54 and a user data portion 5. The header

portion 54 contains addressing information 58 and optional user-defined protocol control

information (not shown). Sabaa in view of Brailean however fails to disclose that the

specifically that the transmitting includes: transmitting the data packet using Transmission

Control Protocol/Internet protocol (TCP/IP). Coile discloses in figures 1 and 2 and column 5,

lines 44-63, column 6, lines 23-36 and respective portions of the specification of sending packets

utilizing the TCP/IP protocol from source to destination (using a client originated sequence

number). Therefore, it would have been obvious to one of ordinary skills in the art at the time of

the invention to incorporate utilizing the TCP/IP protocol as taught in Coile's invention into

Sabaa in view of Brailean's invention in order to reliably route packets while reducing overhead.

Response to Arguments

5.   Applicant's arguments with respect to claim 1-44 have been considered but are moot in

view of the new ground(s) of rejection.

6.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any response to this final action should be mailed to:

> **Box AF**
> Commissioner of Patents and Trademarks
> Washington, D.C. 20231

Or faxed to:

> (703)305-9051, (for formal communications; please mark "EXPEDITED
> PROCEDURE)

Or:

> (703)305-5403 (for informal or draft communications, please label "PROPOSED"
> or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal
Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chirag G Shah whose telephone number is 571-272-3144. The

examiner can normally be reached on M-F 6:45 to 4:15, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the **Patent**

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs
January 12, 2005

Ajit Patel
Primary Examiner